



SPARTA

(not the city)

Rocket 2018 Update

October 2



| What I will talk about (the Todd-Talk!)



- Open Source on z
- ZOWE
- What's Hot at Rocket in 2018
- Discussion

Why open source on the mainframe?

| State of the Mainframe



■ A mature platform

- Impressive uptime
- Excellent transactional performance
- Robust logging

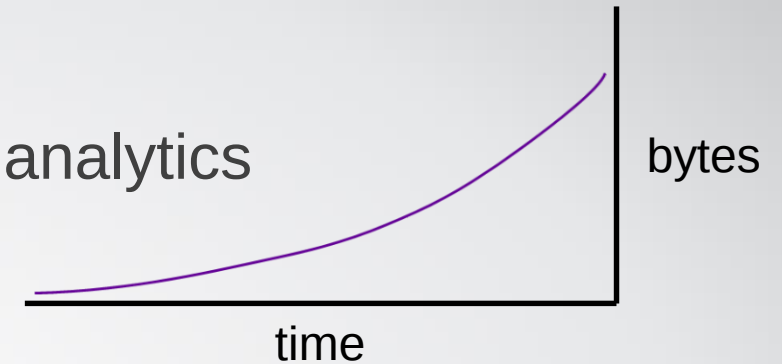
■ It's where the data is

- 92 of the top 100 banks
- 10 of the top 10 airlines
- 23 of the top 25 retailers
- 23 of the top 25 insurance companies

The analytics demand problem



- Data growing exponentially and with it demand for analytics



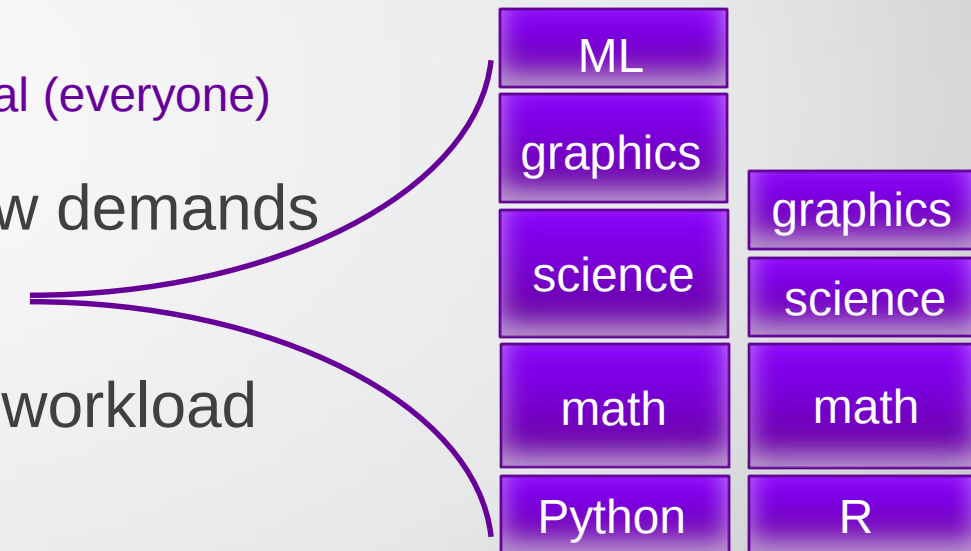
- Demand is for more real-time analytics

Strategic (C-level) → Tactical (management) → Operational (everyone)

- Traditional mainframe languages not ideal for new demands

- Cost is prohibitive for lots of additional analytical workload

Large volume of new DSWL + GPP = \$\$\$



6 The developer problem

- Exclusive group of developers
- High learning curve to join
- Shrinking talent pool

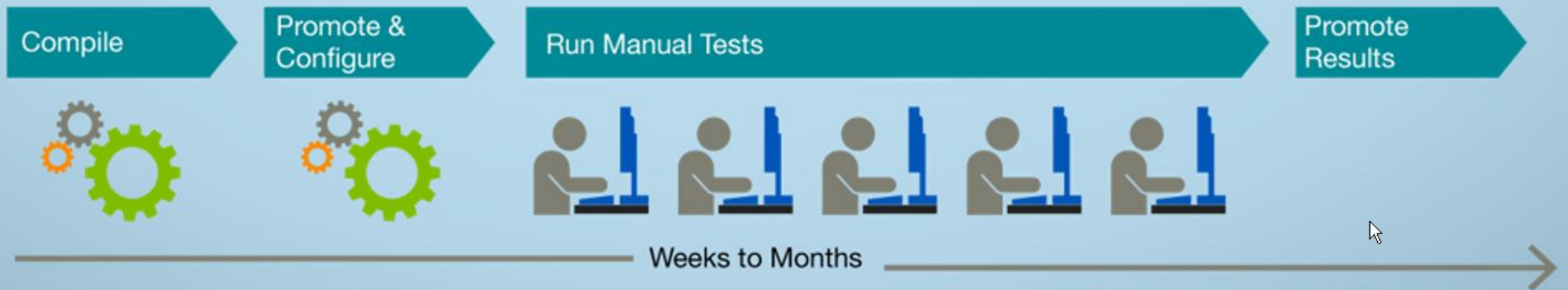


7 The DevOps problem



- Traditional development cycle still the norm

Mainframe Teams Current State



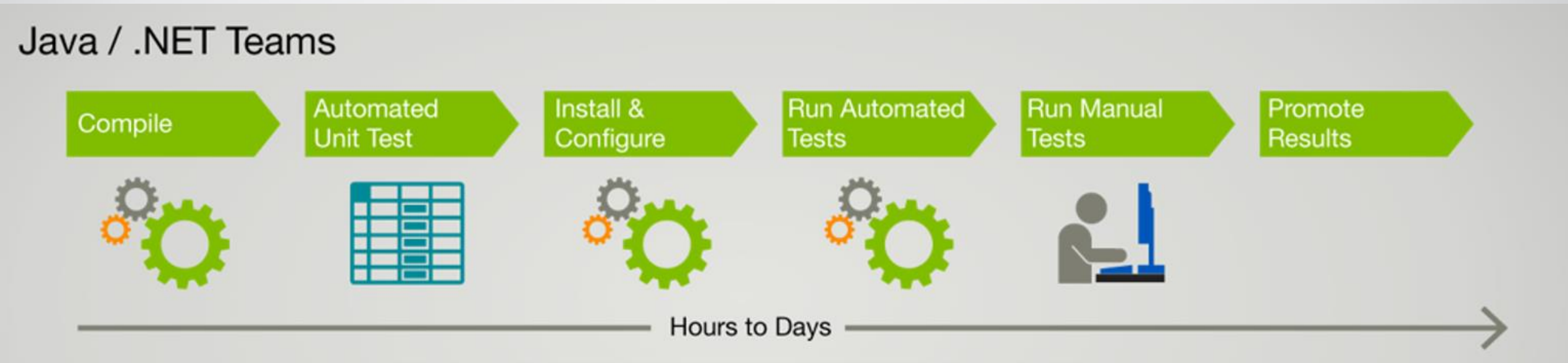
8 | The open source world



- Millions of programmers -- Billions of lines of free code
 - As of April 2017, GitHub reports having almost 20 million users and 57 million repositories, ^[6] making it the largest host of source code in the world. ^[7]
- Lower execution costs
- Lower development costs
 - Fast evolving languages, packages, and tools
 - Java, JavaScript, Typescript, Perl, Python, Go, etc
 - SciPy, Scikit-Learn, Spark, Dask
 - git, cURL, PHP, Jupyter, Zeppelin

9 | The open source world

■ Modern development cycle



10 | How to get the benefits? Move the data?



- ETL solutions have serious drawbacks for analytics
 - High cost – high upfront cost and consumes CPU and bandwidth
 - High latency – credit card fraud best done in real-time!
 - Security risks – many data breaches have occurred due to ETL
- Moving data is a non-starter for DevOps
 - The world is moving to git
 - Corporations want all their sources in git repos ...even z

| Solution for analytics demand problem

- move the compute to the data

- Port open source to z/OS
 - Python and R -- #1 and #2 in data science (after Excel)
 - Spark
 - Anaconda
 - ...and Bash
- IBM MDS for Apache Spark enables easy (SQL) access to data
 - CICS
 - IMS
 - SMF
 - DB2
 - VSAM

Solutions for DevOps, Modernization and Optimization

– move some of the compute to the data

- DevOps and Modernization
 - Port open source to z/OS (git, Perl, Python, cURL, PHP...)
 - SCCS, Automation, API economy
- IBM MDS can help with APIs
 - Make your data available in a secure way with customers and partners
 - MDS supports the API economy
- IBM MDS can help with optimization
 - RDV is much faster than ETL in elapsed time to transfer
 - ETL not optimized for last four zSeries releases
 - MDS optimized for all including z14
 - Pageable large frames
 - SMT-2
 - SIMD
 - zEDC

Rocket's open source offerings on z/OS

| Open Source Languages on z/OS



- Perl 5.24 w/ASCII
- PHP 7.0.5 w/ASCII
- Python 3.6.1 w/ASCII
- Python 2.7.12 w/ASCII (beta)
- R 3.3.1 w/ASCII (beta)



| Languages are not enough

- Editors (vim)
- Source code control (git)
- Build utilities (autoconf, automake, bison, make)
- Web development tools (cURL, webalizer, zlib)
- File and Text utilities (diffutils, findutil, m4, sed)
- Compressors and archivers (bzip2, gzip, zip)
- User interfaces (Bash, jupyter)



| Languages and Tools are not enough



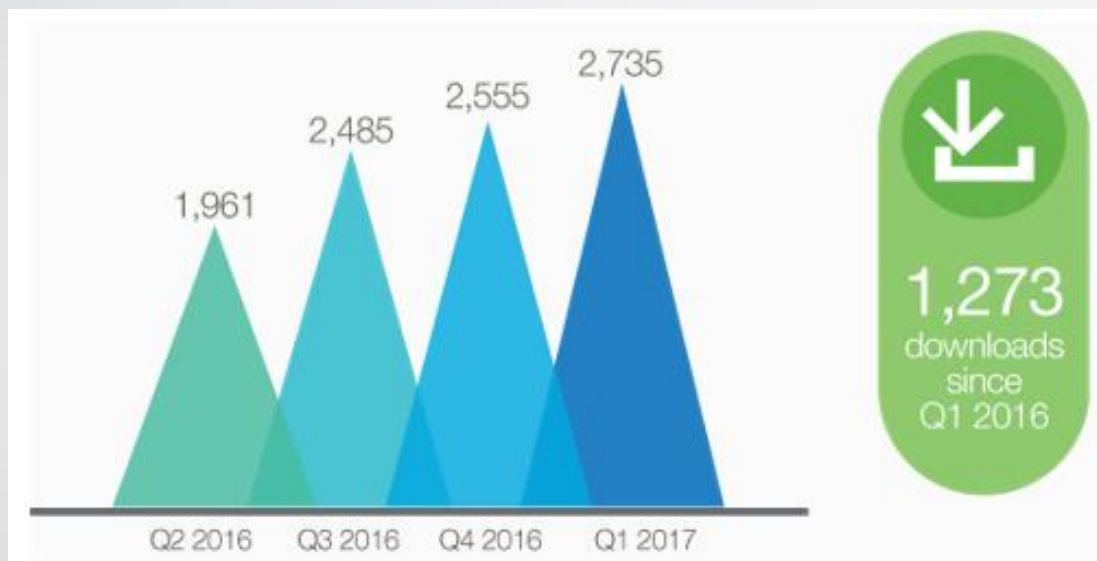
- Math and Science:
 - numpy, statsmodel, sympy, scipy
- Analytics and ML:
 - scikit, pandas, blaze, odo, nltk, pyspark, dask
- Presentation:
 - bokeh, seaborn, Django, Flask, cairo
- Package management:
 - conda



Is anyone really using this?



- Yes. In fact, Rocket is building a community...




1,273
downloads
since
Q1 2016

Resources Support About Us

Sign Up Log In

and Tools for z/OS all Latest Top

Category	Users	Replies	Views	Activity
Open Source Languages and Tools ...	56	2.1K	Jan 21	
Open Source Languages and Tools ...	0	389	Sep 16	
Open Source Languages and Tools ...	4	600	Apr 16	

Topics 77

Replies 584

Thread Views 18,352

Some specifics on z/OS git

| What about character encoding?



■ z/OS Enhanced ASCII

- Source code is ASCII encoded
- All open source is compiled with `-qascii` option
- All open source is ported to support CCSID tagged files
- Automatic conversion is enabled via `_BPXK_AUTOCVT`
- Untagged files are presumed to be EBCDIC

| Encoding Solution for z/OS git



```
# This sets the default encoding for files that do NOT match any of the
# following patterns. Many z/OS users will want the bulk of their files
# as EBCDIC.

* git-encoding=iso8859-1 working-tree-encoding=ibm-1047

# Some of the git configuration files MUST be ASCII.

.gitattributes      git-encoding=iso8859-1 working-tree-encoding=iso8859-1
.gitignore          git-encoding=iso8859-1 working-tree-encoding=iso8859-1

# Some files are not text; leave them untouched, and tagged as binary files.

*.jpg      git-encoding=BINARY      working-tree-encoding=BINARY
*.png      git-encoding=BINARY      working-tree-encoding=BINARY
*.gif      git-encoding=BINARY      working-tree-encoding=BINARY
*.zip      git-encoding=BINARY      working-tree-encoding=BINARY
```


z/OS Git and extensions and hooks

- Phase 1 – Store sources in git repos but build with SCLM
 - REXX exec to migrate z/OS partitioned datasets to USS file systems
 - REXX exec maintains additional stats files for
 - ISPF stats
 - File type binary vs. text
 - Sequence number restore option
 - Reverse of the above
 - Also developed REXX scripts to migrate SCLM history to git history
- Phase 2 – Store sources in git repos and build from USS

z/OS Git and extensions and hooks



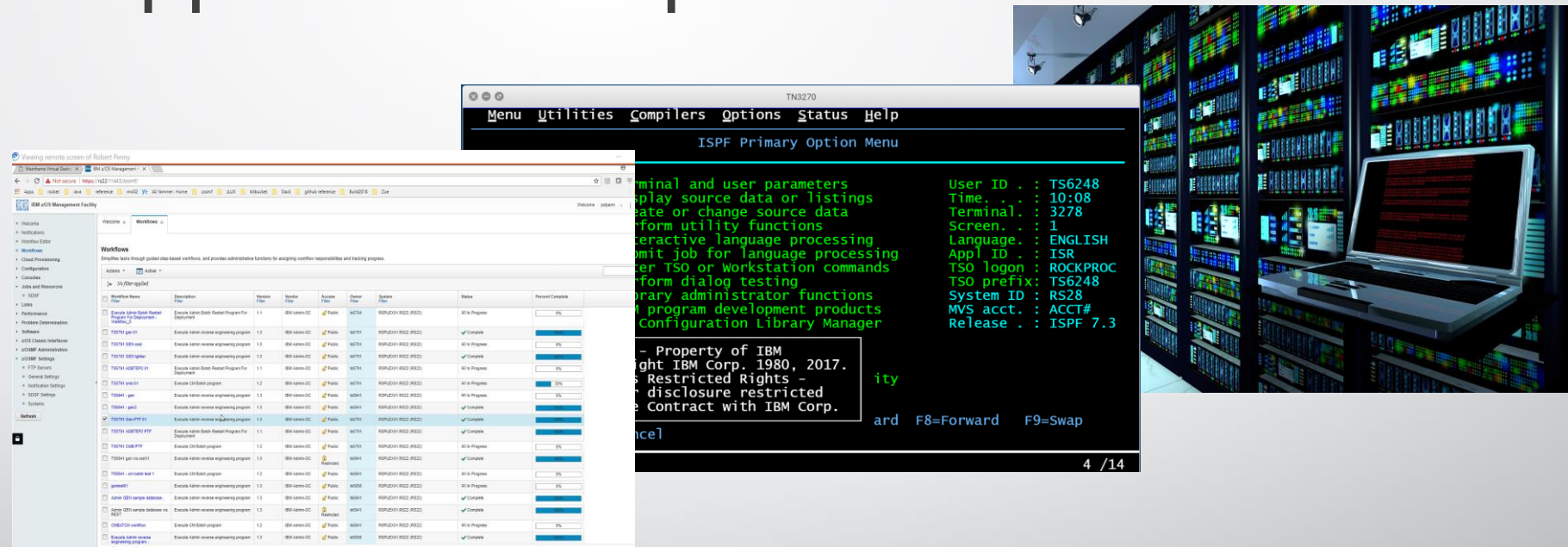
- Phase 2 – Store sources in git repos and build from USS
 - Python code to enable all sources to be built from USS (still in progress)

Introducing Zowe

The user experience problem



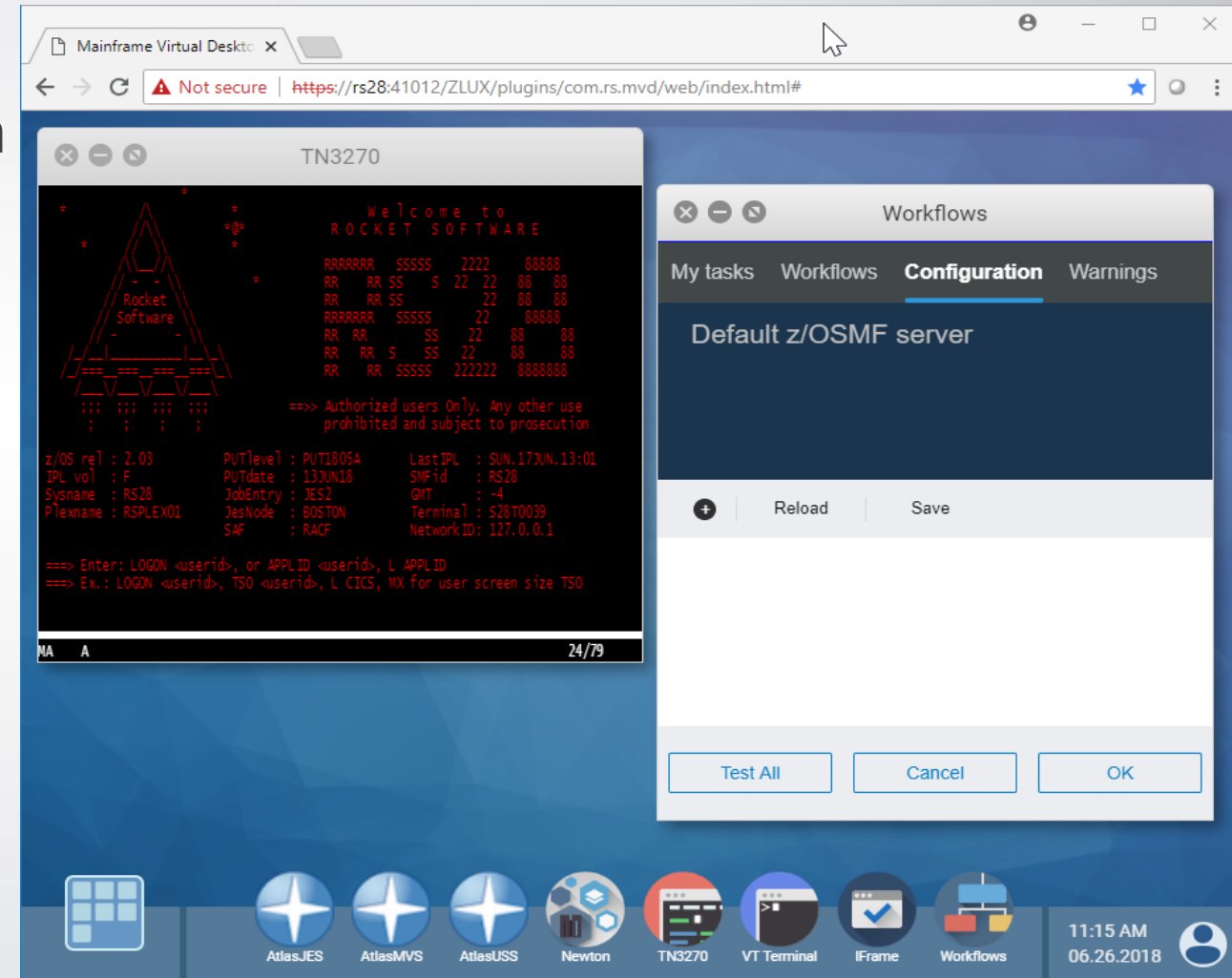
- Green screen technology
- Heterogeneous set of browser-based applications
- No cross-application cooperation



The Opportunity



- Create a unified environment
 - Homogeneous desktop-like platform
 - Modern look-and-feel
 - Single sign-on
 - Cross-application communication between vendors
 - Cross-application launching
 - Access to legacy applications



The Opportunity



- Attract the new generation of developers
 - Best-of-breed web technologies
 - Simplified application architecture
 - Self documenting REST-APIs
 - Reduced learning curve
 - Open source effort



The Opportunity



- Modernize and enhance existing applications
- Free applications with paying upgrades
- Converge onto a single platform
 - Unified technological stack



The Opportunity



- Increase application development speed
 - Fast development through standard web-app architecture
- Improve release agility
 - Faster delivery of small targeted changes within an app
 - In-between-release delivery



Rocket



- Improve responsiveness to customer needs
 - Make, test, and deploy changes in days
 - Create, test, and deploy custom apps in weeks
- Involve customers in the development effort
 - Customers create their own applications and contribute them back to the community
 - Direct insight into their needs and perspectives

The Plan

- Create a web-based desktop environment
 - Rocket's contribution to ZOWE
- Expose core z/OS functionalities through REST APIs
 - The empowering move that makes it easy for web developers to master the mainframe
- Plug into the z/OS security model
 - A no-compromise zone for mainframe operators

How We Get There



■ Drive adoption

- Commercial offerings on top of Zowe
- Customer Advisory Board under OMP

■ Provide support

- Training material and documentation
- Commercial support

■ Rocket

- Founding member of a new Open Mainframe Project
 - <https://www.openmainframeproject.org/projects/zowe>
- Member of the OMP Governing Board
- Part of the Linux Foundation

■ Partnership with IBM and CA



The dawn of a new mainframe ecosystem

ZOWE

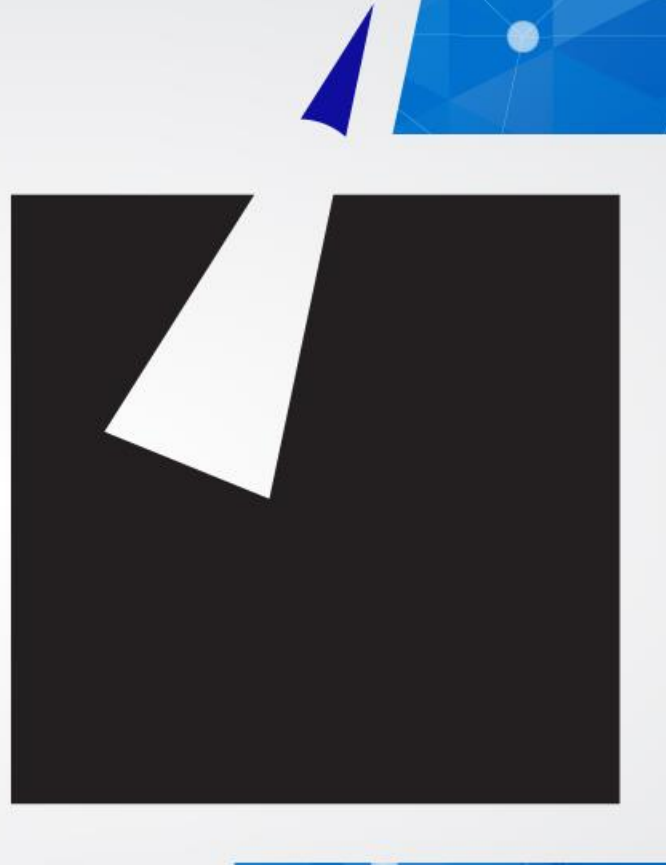
Rocket Top Mainframe Organization Solutions



- **Rocket MXI for z/OS**
 - Monitor z/OS systems easily for optimum efficiency
- **Rocket Catalog Recovery Plus**
 - Provide uninterrupted access to data without touching applications
- **Rocket Performance Essential**
 - Significantly improves overall batch processing performance by dramatically reducing I/Os
- **Rocket API**
 - RESTful Web Service APIs and Application Integration
- **Rocket BlueZone Web**
 - Browser-Based Terminal Emulation
- **Rocket LegaSuite Web**
 - Repurpose Enterprise Applications as Web Apps
- **Rocket DASD Backup Supervisor**
 - Automated DASD full volume backup & recovery
- **Rocket DR/Xpert**
 - Disaster recovery assurance through automation



MXI for z/OS



- Reduce exposure to system interruptions by identifying and remediating issues before they affect business operations.
- Decrease time and effort spent on monitoring and auditing through an automated Solution with instant access to vital information.
- Accelerate implementation and time to value: MXI is quick to install, easy to use, and won't tax IT staff.
- Lower-cost, small-footprint monitoring solution requires minimal CPU and disk resources, leading to 40% cost savings compared to other solutions
- Base product: Rocket MXI is ordered as a base module that monitors z/OS systems. MXI monitoring can be extended with optional plug-in modules for the following subsystems:
 - CICS • DB2 • TCP/IP • Message Queue (MQ) • Storage Manager

Provides relevant system information through either web or traditional ISPF and REXX interfaces.

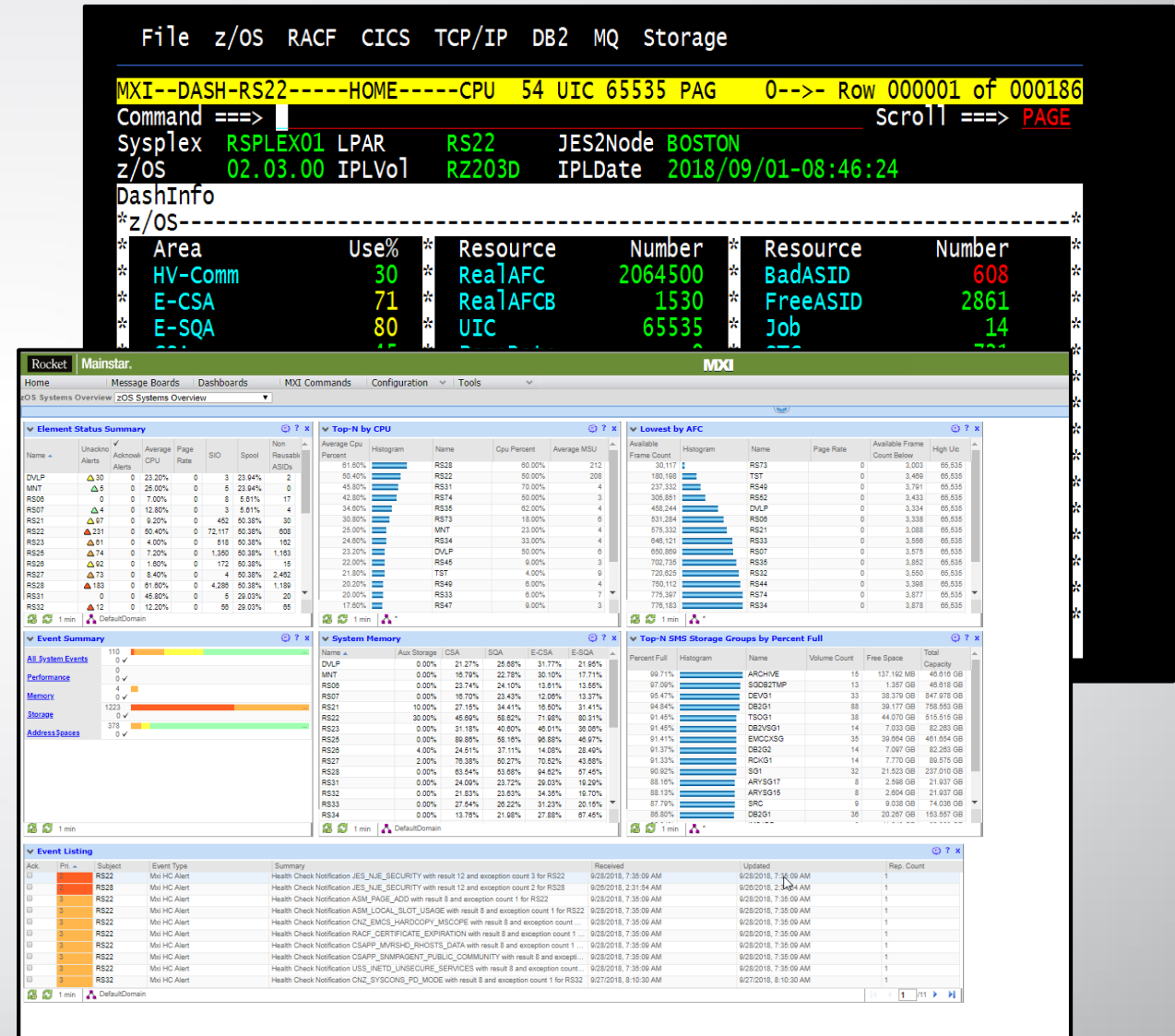
Consolidation and Analysis Engine (CAE) communicates with MXI on z/OS and provides an end-to-end view of all z/OS systems.

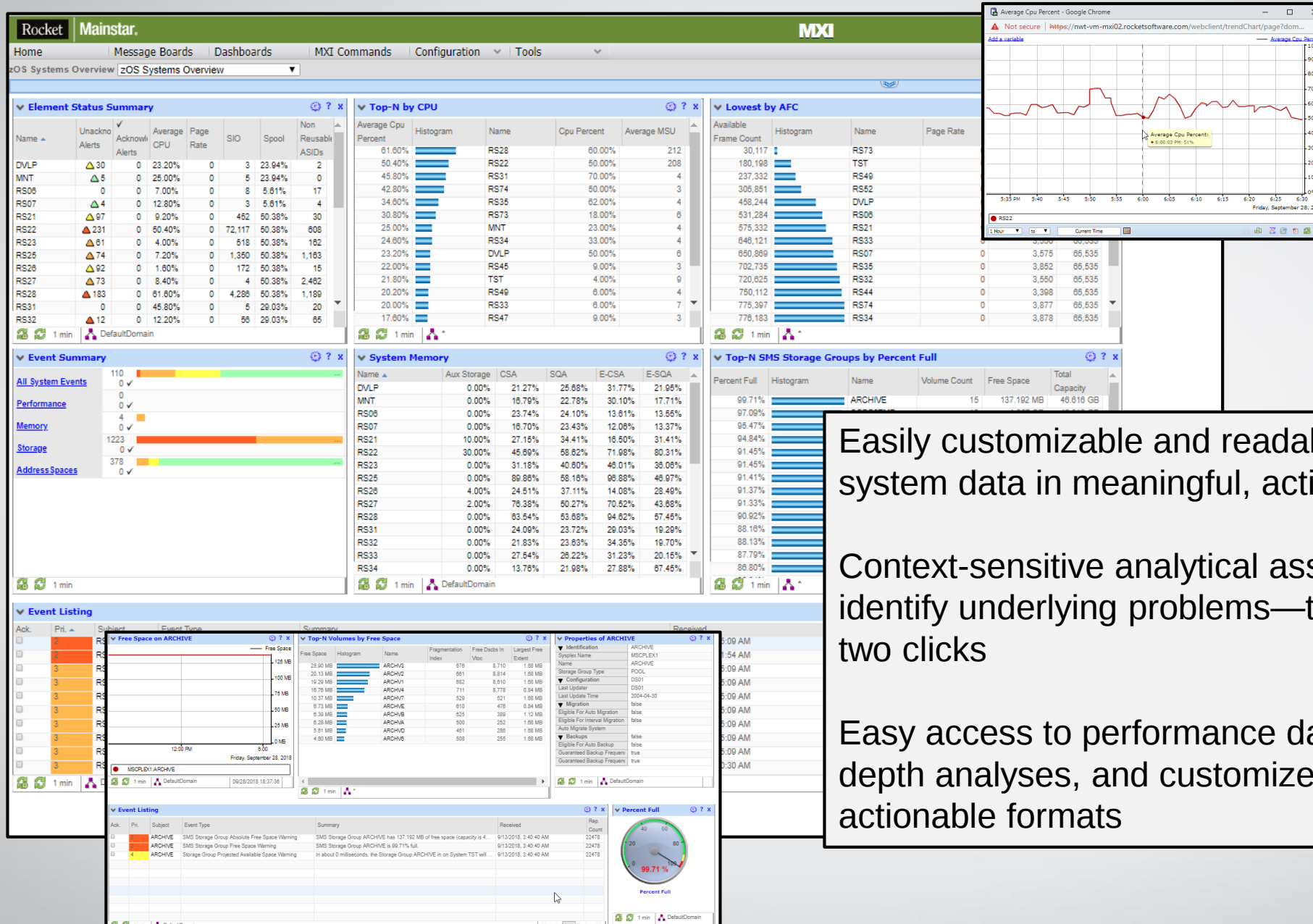
Presents system information via easy-to-read dashboards

Offers customizable, intelligent alerting through email, z/OS operator commands, SNMP, and Write-to-Operator (WTO)

Includes historical comparative data and analytics

Displays all information in easy-to-read graphical formats





Easily customizable and readable dashboards present system data in meaningful, actionable formats

Context-sensitive analytical assistance helps quickly identify underlying problems—typically with only one or two clicks

Easy access to performance data for ad hoc queries, in-depth analyses, and customized management reports in actionable formats

```

S2 - RS22 - BlueZone Mainframe Display
File Edit Session Options Transfer View Script Help

File System Dataset Module Unit Sysplex SMS Memory WLM JES2

MXI--MENU-RS22-----HOME-----CPU 54 UIC 65535 PAG 0---- Row 000001 of 000015
Command ==> Scroll ==> PAGE
Detail N
MXI Version 6.2 Genlevel 170322

```

Group	Comment	Members
CICS	CICS Plug-In Commands	29
DATASET	Dataset Commands	11
DB2	DB2 Plug-In Commands	16
DCM	Storage Manager Plug-In Commands	20
IP	TCP/IP Plug-In Commands	14
JES2	JES2 Commands	8
MEMORY	Memory Related Commands	16
MODULE	Load Module Commands	10
MQ	MQ Series Plug-In Commands	13
RACF	RACF Commands	6
SMS	SMS Commands	9
SYSPLEX	Sysplex Commands	7
SYSTEM	z/OS System Commands	39
UNIT	Device Commands	15
WLM	Workload Manager Commands	14

```

ASID 0568 (TS5778) CICS(CICSA) DB2(DSN1) MQ(CSQ1)
S2/B Ready (1) 192.168.55.22 S22T0033 NUM 04.015

```

```

File z/OS RACF CICS TCP/IP DB2 MQ Storage

MXI--DASH-RS22-----HOME-----CPU 54 UIC 65535 PAG 0-->- Row 000001 of 000186
Command ==> Scroll ==> PAGE
Sysplex RSPLEX01 LPAR RS22 JES2Node BOSTON
z/OS 02.03.00 IPLVol RZ203D IPLDate 2018/09/01-08:46:24
DashInfo
*z/OS-----*

```

Area	Use%	Resource	Number
HV-Comm	30	RealAFC	2064500
E-CSA	71	RealAFCB	1530
E-SQA	80	UIC	65535
CSA	45	PageRate	0
SQA	58	AvgCPU	55
Fixed	6	AvgMSU	191
Aux	30	ZIIP%	2
Spool			

```

*****
Jobname CPU
TS57702 37.1
MXIMAST 1.1
IZUSVRAT 1.1
WLM 0.1
ASID 0568 (TS5778)

```

```

File System Dataset Module Unit Sysplex SMS Memory WLM JES2

MXI--DA---RS22-----HOME-----CPU 60 UIC 65535 PAG 0---- Row 000001 of 000077
Command ==> Scroll ==> PAGE
Jobname =TS57702 Type =* System =RS22
Scope Maxuser 4306 Free 2861 Bad 608
Field Value
Address Space Name TS57702
Step Name *OMVSEX
Procedure Step Name
JES Job ID S0683983
JES Job Class
Address Space ID (Hex) 0614
Position IN
Swap Reason DW
Real Storage Frames 2162
Start EXCPs 0
CPU Percentage Usage 38.00
ZIIP Percentage Usage 0.00
ZAAP Percentage Usage 0.00
EXCP Count 99592
TCB CPU Time 04:16:53.8916
SRB CPU Time 00.0010
ASID 0568 (TS5778) CICS(CICSA) DB2(DSN1) MQ(CSQ1)

```

Commands and Dashboards Available in both CAE and ISPF Interfaces. Drill down for greater detail with point and click.

Rocket Mainstar MXI							
Logged in as: TS5778 Help Logout About							
Home Message Boards Dashboards MXI Commands Configuration Tools							
Default Message Board Event Summary: All System Events Event Summary: Interface Performance Event Summary: Performance Event Summary: User Catalog BCs DVP Event Summary: All CICS Events							
Act	Pri	Correlation	Event Type	Summary	System	Subject	Received
3			DB2 Zos Subsystem Edm Pages In Use	The EDM Pool is 100.00% used on DB2 DCB1 on RS27	RS27	DCB1	9/8/2018, 4:06:35
4			Catalog Cache Hit Ratio Too Low	The catalog ICFRSPLEX01.EB1G.CATD on RS28 has an average hit ratio of 0.5	RS28	ICFRSPLEX01.EB1G.CATD	9/8/2018, 10:38:40
8			Msi SYSTEM Alert	MXI Scope LO_SYS_REALAFCB was matched for RS25	RS25	RS25	9/8/2018, 12:07:28
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:51:34.471 for LB1A.LB1ACDC1:188CC8E0:12:08		RS28	LB1A.LB1ACDC1:188CC8E0:12:08	9/8/2018, 12:14:14
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:51:34.487 for LB1A.LB1ACDC1:188CCF80:12:08		RS28	LB1A.LB1ACDC1:188CCF80:12:08	9/8/2018, 12:14:14
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:10:39.342 for LB1A.LB1ACDC2:187ADB00:12:48		RS28	LB1A.LB1ACDC2:187ADB00:12:48	9/8/2018, 12:58:10
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:10:39.338 for LB1A.LB1ACDC2:187AF200:12:48		RS28	LB1A.LB1ACDC2:187AF200:12:48	9/8/2018, 12:58:10
4			BCS Running Out Of Extents	Dataset CATALOG.EH.REORG99 is at 123 extents out of a maximum of 123.	002107-061 DFF91	CATALOG.EH.REORG99	9/8/2018, 1:47:41
2			Catalog Volume Free Extent Size Warning	The largest free extent on catalog volume TSTSM9 is only 210 tracks vs. seconds	002107-061 DFF91	CATALOG.UBS.PROD1	9/8/2018, 1:47:41
2			Catalog Volume Free Extent Size Warning	The largest free extent on catalog volume TSTSM7 is only 340 tracks vs. seconds	002107-061 DFF91	CATALOG.UBS2.PROD1	9/8/2018, 1:47:41
4			Catalog Cache Hit Ratio Too Low	The catalog ICFRSPLEX01.EB1F.CATD on RS28 has an average hit ratio of 0.00	RS28	ICFRSPLEX01.EB1F.CATD	9/8/2018, 9:08:41
3			DB2 Zos Subsystem Edm Pages In Use	The EDM Pool is 100.00% used on DB2 XC1A on RS25	RS25	XC1A	9/7/2018, 1:48:22
3			DB2 Zos Subsystem Edm Pages In Use	The EDM Pool is 100.00% used on DB2 QC1C on RS25	RS25	QC1C	9/7/2018, 1:48:22
4			Catalog Cache Hit Ratio Too Low	The catalog ICFRSPLEX01.QAX1.CAT1 on RS25 has an average hit ratio of 9.23	RS25	ICFRSPLEX01.QAX1.CAT1	9/7/2018, 2:15:55
3			DB2 Zos Subsystem Edm Pages In Use	The EDM Pool is 100.00% used on DB2 OCA8 on RS52	RS52	OCA8	9/7/2018, 7:45:27
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume ML1002 of 002107-061 DFF91 is only 21	002107-061 DFF91	ML1002	9/8/2018, 3:25:57
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume H1P102 of 002107-061 DFF91 is only 26	002107-061 DFF91	H1P102	9/8/2018, 8:28:30
4			Storage Group Projected Available Space In about 0 milliseconds, the Storage Group ARYSG28 in on System RS28 will likel		RS28	ARYSG28	9/10/2018, 3:41:51
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 20:03:50:08.287 for LB1A.LB1ACDC1:1981F980:07:09		RS28	LB1A.LB1ACDC1:1981F980:07:09	9/10/2018, 7:18:38
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 20:03:50:08.254 for LB1A.LB1ACDC1:1981F3A0:07:09		RS28	LB1A.LB1ACDC1:1981F3A0:07:09	9/10/2018, 7:18:38
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:10:05.788 for LB1A.LB1ACDC2:1B0D88E0:12:49		RS28	LB1A.LB1ACDC2:1B0D88E0:12:49	9/10/2018, 8:11:41
4			DB2 Z/OS Thread Class 1 Elapsed Warn Class-1 Elapsed Time is 23:22:10:05.749 for LB1A.LB1ACDC2:1B0D7200:12:49		RS28	LB1A.LB1ACDC2:1B0D7200:12:49	9/10/2018, 8:11:41
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume F2P100 of 002107-061 DFF91 is only 21	002107-061 DFF91	F2P100	9/10/2018, 8:43:30
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume F2P104 of 002107-061 DFF91 is only 10	002107-061 DFF91	F2P104	9/10/2018, 8:43:30
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume F2P108 of 002107-061 DFF91 is only 11	002107-061 DFF91	F2P108	9/10/2018, 8:43:30
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume F2P10A of 002107-061 DFF91 is only 11	002107-061 DFF91	F2P10A	9/10/2018, 8:43:30
3			Logical Volume Free Extent Size Warning	The largest free extent on logical volume F2P106 of 002107-061 DFF91 is only 23	002107-061 DFF91	F2P106	9/10/2018, 8:43:30

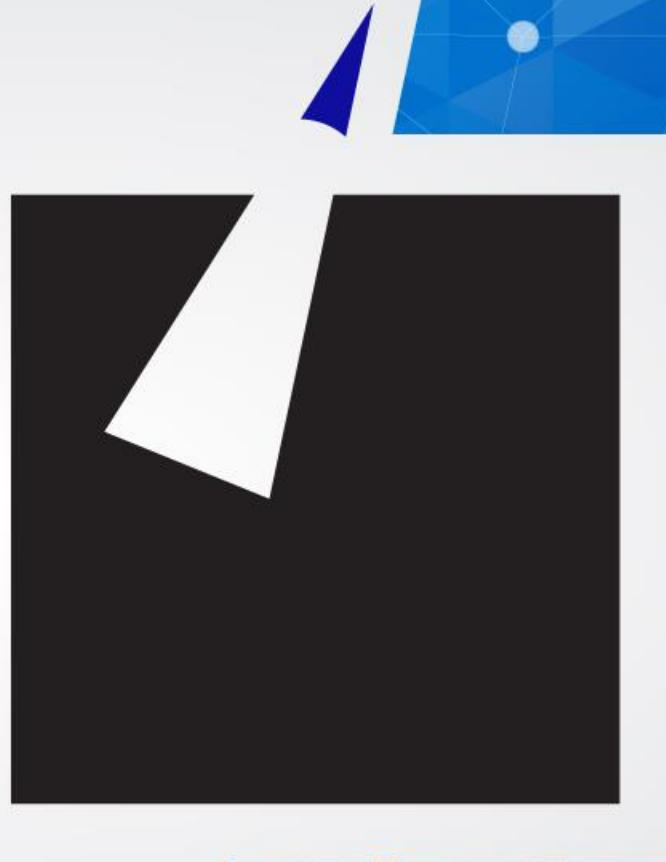
Critical Events and Message Log

Alerting through email, z/OS operator commands, SNMP, and WTO

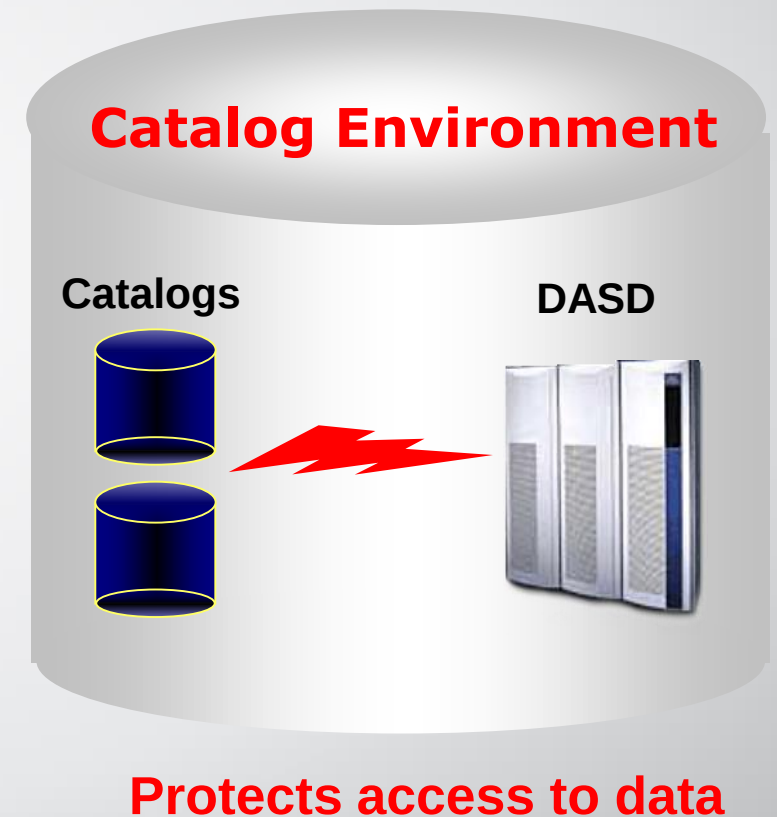
Rocket Mainstar MXI											
Logged in as: TS5778 Help Logout About											
Home Message Boards Dashboards MXI Commands Configuration Tools											
System Configuration											
Actions	Scopes	Responses	Custom Launch	Monitoring	Monitoring Overrides	Monitored Information Types	Correlations				
Action Schedules											
- Bice test Action - Server-based Actions - ZTEAM EmailAction DB2 storage - Address space Virginia - Alex Email - cancel - Copy of SampleEmailAction - copy of Virginia DB2 Thread email - CQM CPU - CQM EmailAction - DA1AWLM1 EmailAction - DCollect Master Task - DCollect TSO Task - demo EmailAction - DisNew SMS Volume - Enable SMS Volume - Example - example client action - ExampleAuxEmail - fugeres EmailAction - GGC EmailAction - Ilya Email - Joris D M CPU - Joris EmailAction - MQ event EmailAction - MQQ Depth - MXI Agent or System EmailAction - Ray Email - rpenny EmailAction - rpenny EmailAction 2 - rpenny Ipar EmailAction 2 - SampleEmailAction - Shari - SNMP v2 Alert Clear - SNMP v2 Alert Notification - SNMP v2 Clear to wal-d-rp03 - SNMP v2 Clear to wal-vm-nrcure02 - SNMP v2 Clear to wal-vm-nrcure02 - SNMP v2 Notification to wal-d-rp03				Action Group: Server-based Actions Subject Type: AddressSpace Event Type: AddressSpaceCpuBusy Related Event Type: <none> To: knjenga@rs.com From: mvi02@rs.com Cc: Bcc: Subject: \$(event.type) was \$(trigger) on \$(device.bestName) for \$(subject.bestName)							
Primary SMTP Backup SMTP SMTP Host: smtp.rocketsoftware.com SMTP Username: SMTP Password: Set Password SMTP Port: Use SSL: ☐				File Attachment: Message: AddressSpace : \${subject.bestName} AverageCPU : \${event.averageCPUPercent} System: \$(device.bestName) Event Type: \$(event.type) Time: \$(event.datetime) Trigger: \$(trigger) Message: \$(event.message) (*) Bold font denotes a required field							



Catalog Recovery Plus



- Your data requires 24x7 access
- A large percentage of your data may be cataloged in as few as 2-3 catalogs
- ICF catalogs are a single point of failure
- Comply with government or industry regulations
- Support business resiliency initiatives
- An unplanned outage or catastrophic failure can result in significant impact for critical applications

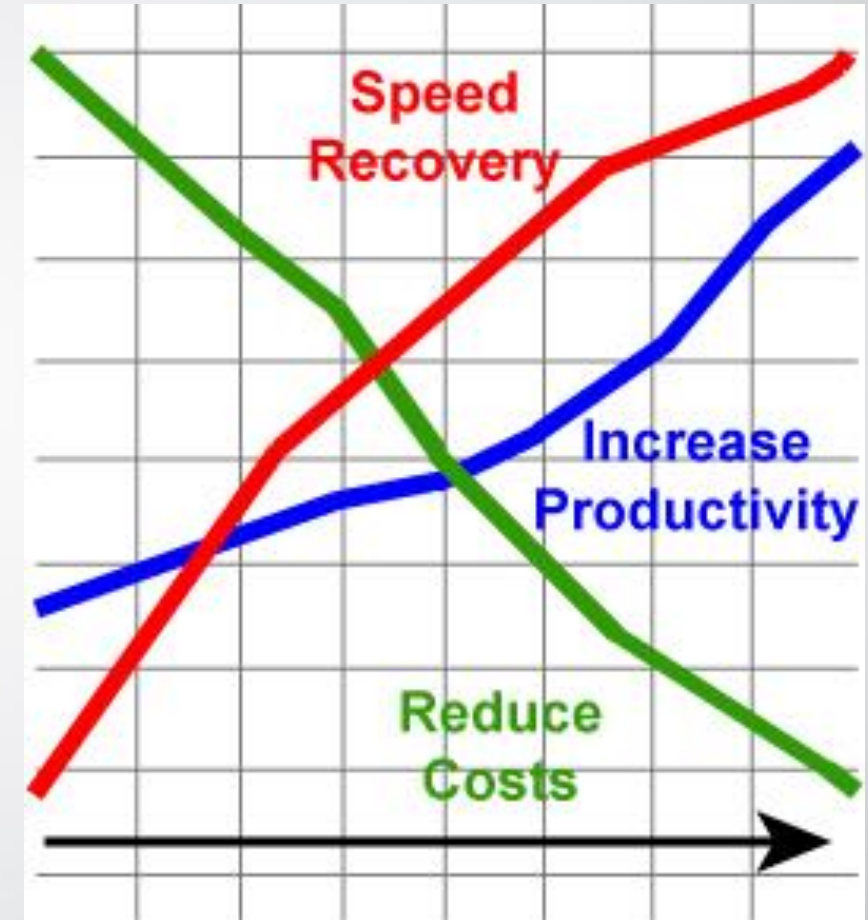


Things go bump in the night ...

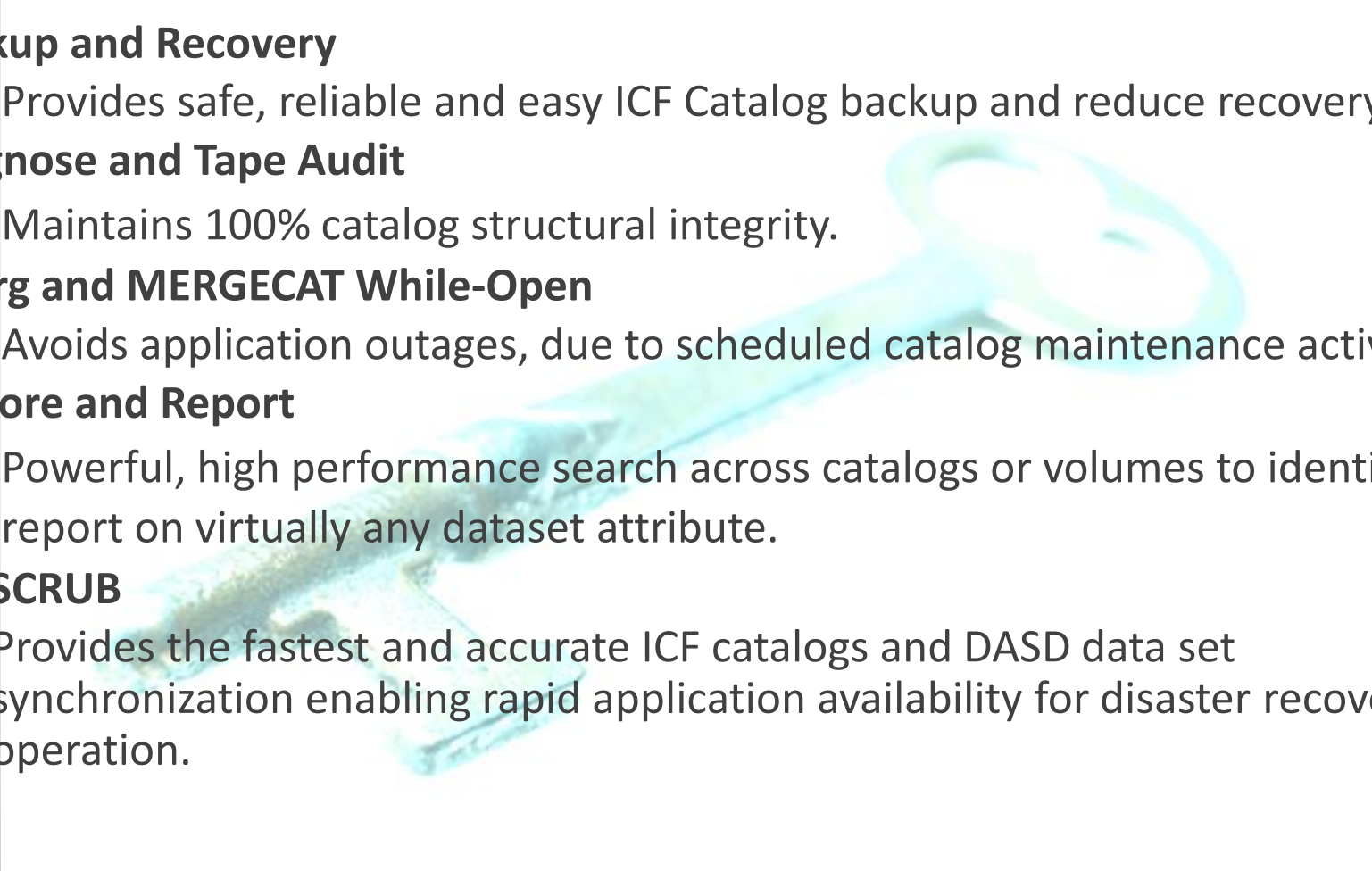
- Volumes fail and have to be restored
- Catalogs (BCSs and VVDSs) become corrupted and have to be restored
- Data sets become uncataloged, don't ever get cataloged, or are cataloged to the wrong catalog
- Data sets are cataloged, but don't exist
- CAS or caching problems



- Protect against loss of access to data
- Reduce risk of Failure
- Reduce recovery time
- Simplify Forward Recovery
- Avoid application outages
- Improve productivity through ease of use and enhanced functionality

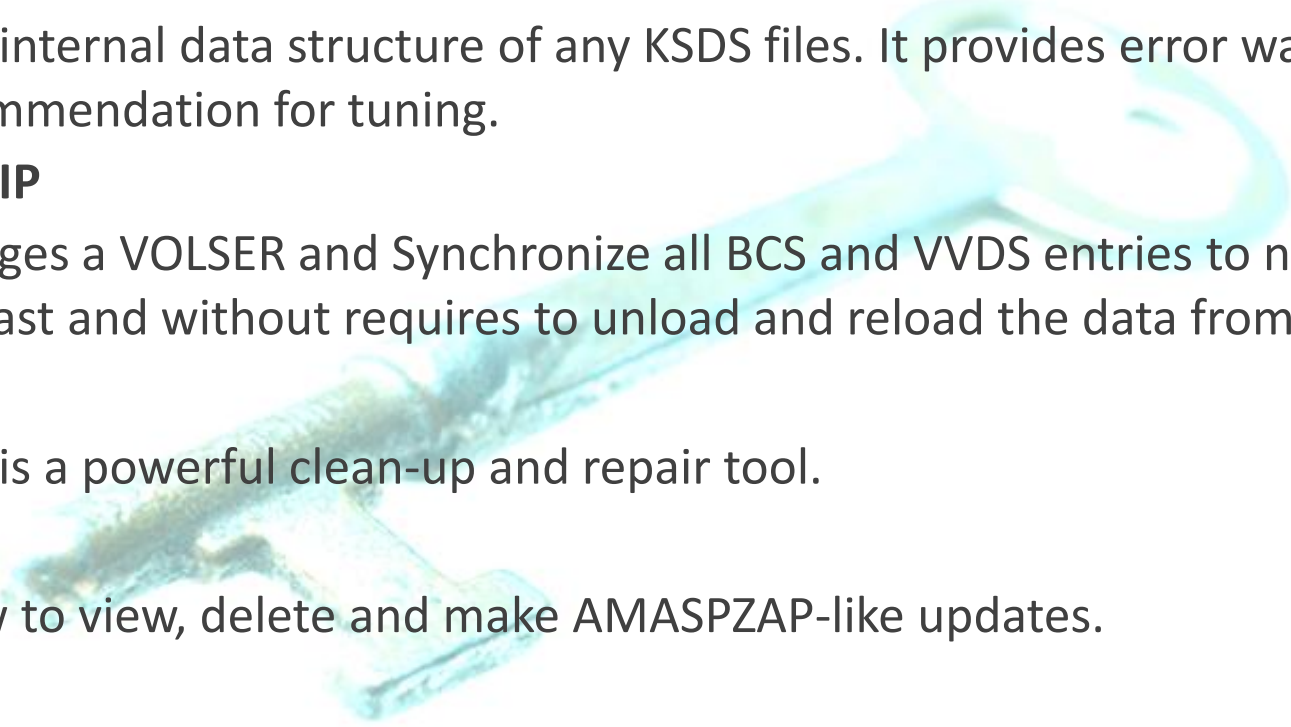


Top Features

- 
- A large, stylized, light blue key graphic is positioned diagonally across the slide, behind the list of features. The key has a circular head and a long, thin shaft with a notched end.
- **Backup and Recovery**
 - Provides safe, reliable and easy ICF Catalog backup and reduce recovery time.
 - **Diagnose and Tape Audit**
 - Maintains 100% catalog structural integrity.
 - **Reorg and MERGECAT While-Open**
 - Avoids application outages, due to scheduled catalog maintenance activities.
 - **Explore and Report**
 - Powerful, high performance search across catalogs or volumes to identify and report on virtually any dataset attribute.
 - **CATSCRUB**
 - Provides the fastest and accurate ICF catalogs and DASD data set synchronization enabling rapid application availability for disaster recovery operation.

Top Features

- **LIST and Map**
 - Provides flexible options to extract or print from SMF and ENQ data.
 - Map internal data structure of any KSDS files. It provides error warning and recommendation for tuning.
- **SUPERCLIP**
 - Changes a VOLSER and Synchronize all BCS and VVDS entries to new VOLSER. It is fast and without requires to unload and reload the data from the volume.
- **ALTER**
 - This is a powerful clean-up and repair tool.
- **ZAP**
 - Allow to view, delete and make AMASPZAP-like updates.





Performance Essential



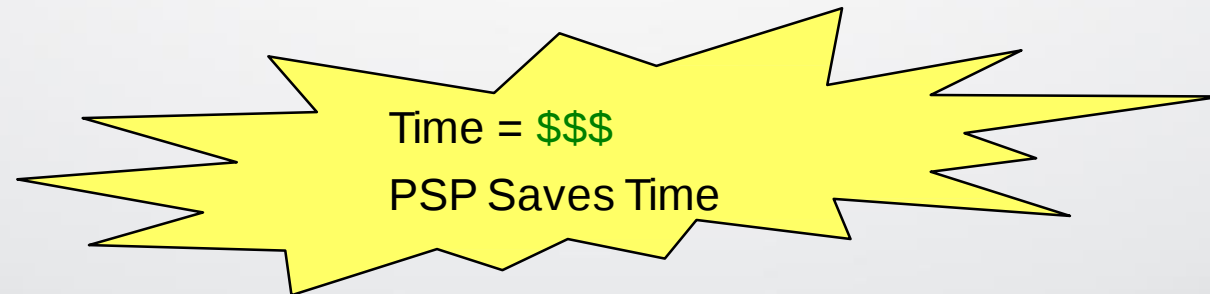
- **Batch processing benefits**
 - Improve VSAM and Non-VSAM Performance
 - Helps reduce EXCP counts, CPU time, and elapsed time
 - Exploits VSAM LSR and NSR buffering for application programs transparently

- **Application Performance Analyzer (APA)**
 - Performance Essential offers modeling capabilities that predict system behavior based on Performance Essential
 - Low- overhead tool that finds high activity candidates using SMF data

Why is Optimization of I/O Important?



- Growth and batch processing window constraints
- Business needs out of alignment with application design
- Data center consolidations
- Extending business without the need to upgrade systems



55 Why is Optimization of I/O Important?

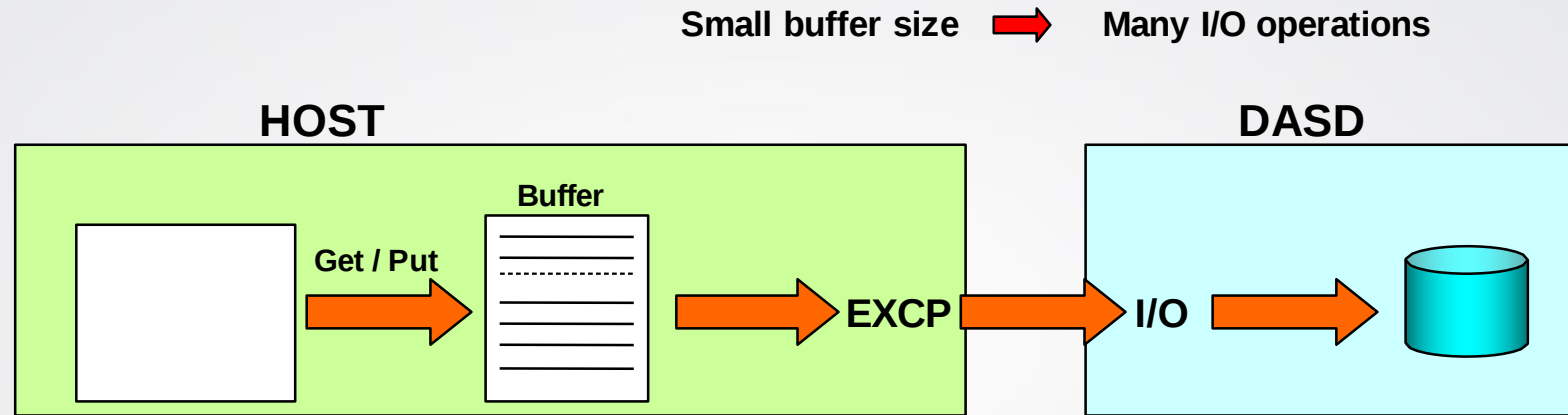


“ We’re predicting, conservatively, cost savings of US \$6.6 million across our environment over five years using Performance Essential, through a reduction in elapsed time and in CPU cycles running VSAM and sequential data batch processing. ”

- IT director, Fortune 100 financial institution

The image shows a man and a woman walking through a server room aisle. The man is on the left, wearing a grey sweater and blue pants, looking at the woman. The woman is on the right, wearing a white shirt and black pants, holding a tablet and looking at it. The server racks are on both sides of the aisle, and the floor is made of metal grates.

I/O Without Using Performance Essential



Inefficient I/O operations

Relying on system defaults

Improper tuning

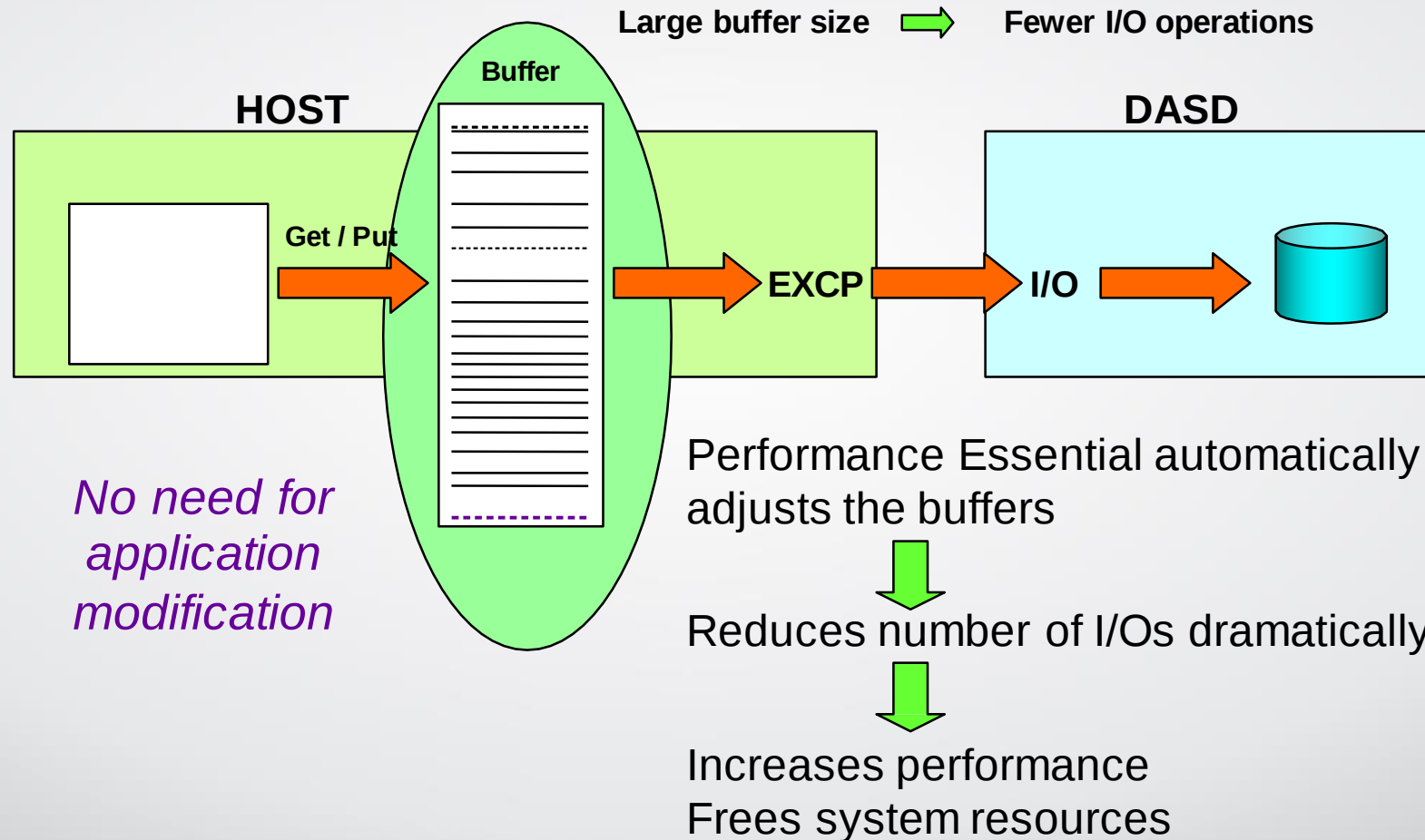
Lack of flexibility when change is required from sequential to random access (or vice versa)



Low performance

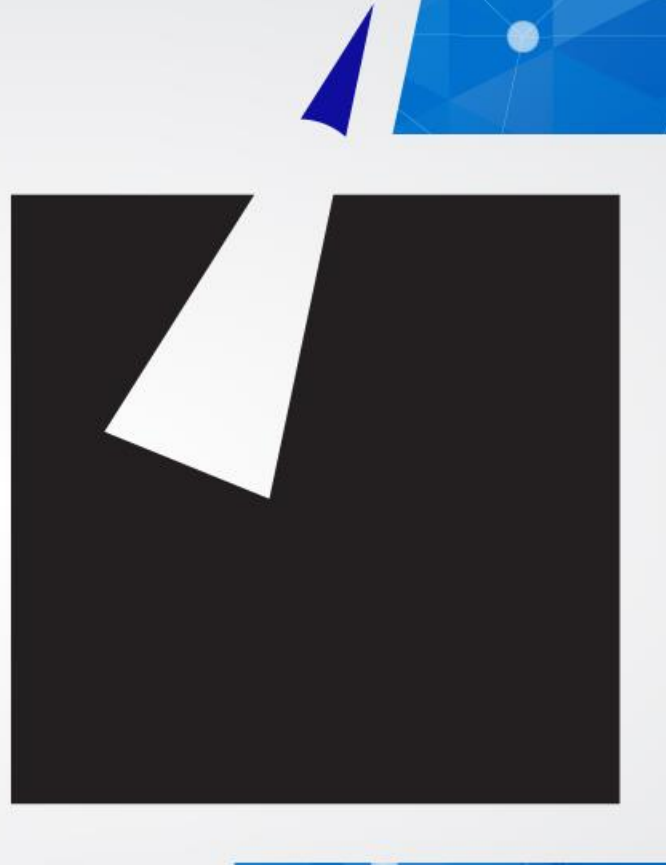
System is not utilized to its maximum capacity

I/O Using Performance Essential





Modernization and Mobilization



Rocket
BlueZone

Rocket
LegaSuite

Rocket
API



Terminal
emulation

Web
transformation

Web
transformation
with workflow
improvements

Reinvent the user
experience on top
of your existing
code

Reinvent the user
experience and
codebase

- Extend green-screen applications to display on PCs or mobile devices

- Improve navigation look-and-feel without changing workflow

- Improve user experience within a primary application

- Evaluate modernization of front-end functionality and screens vs. back office functions.
- New user interface for web and mobile

- Redesign your application using APIs to leverage functionality from host-based applications
- Move to other platforms over time

Touch up the walls

Paint walls, add new flooring & furniture

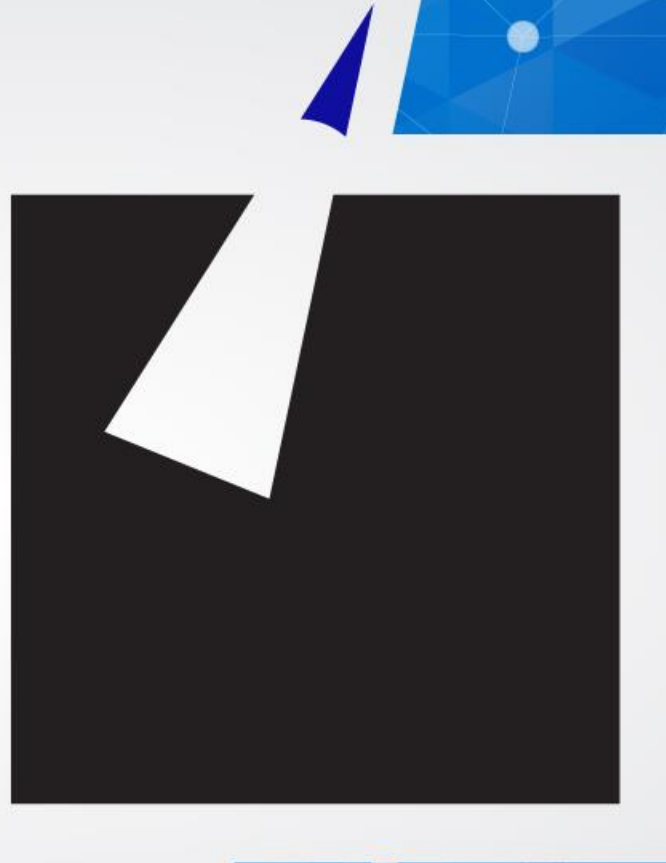
Update several rooms & tear down interior wall for improved traffic flow

Complete interior redesign with smart, eco-friendly features

Tear down and rebuild

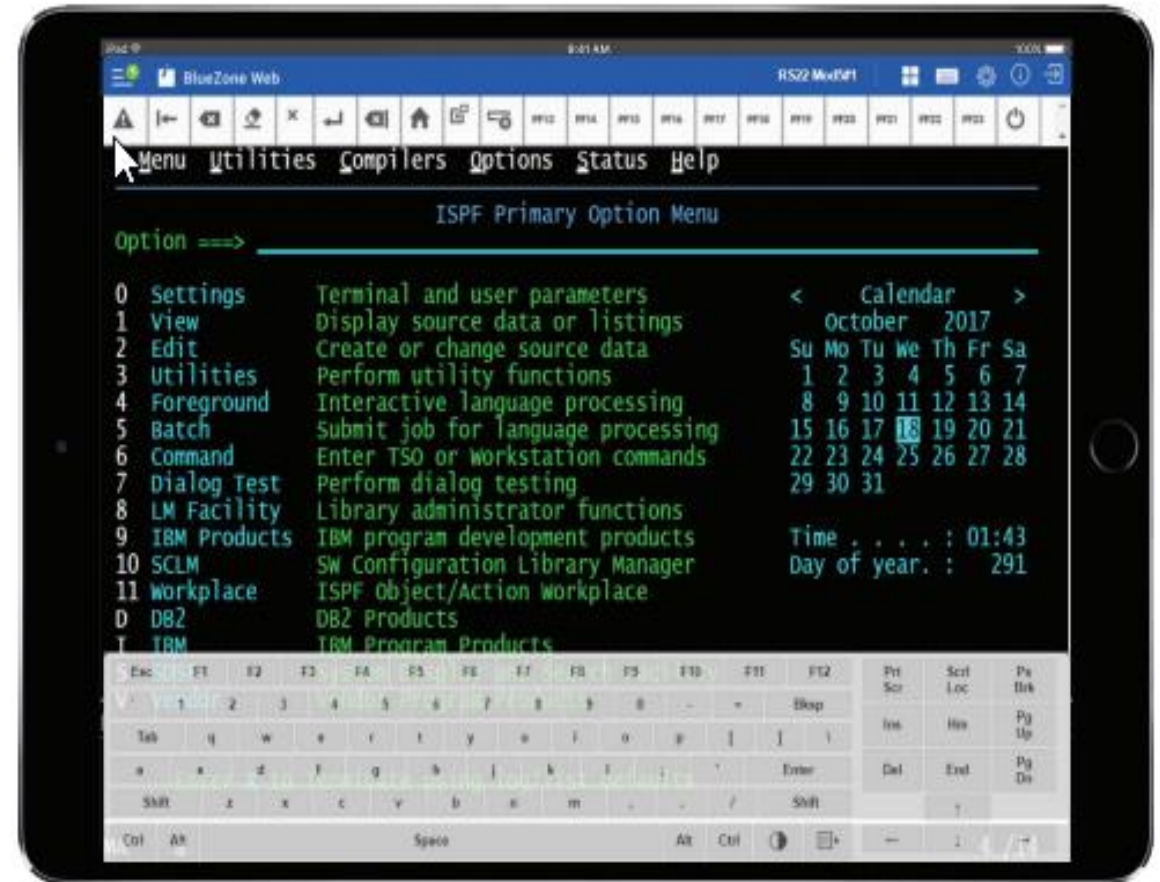


BlueZone Web



What is BlueZone Web?

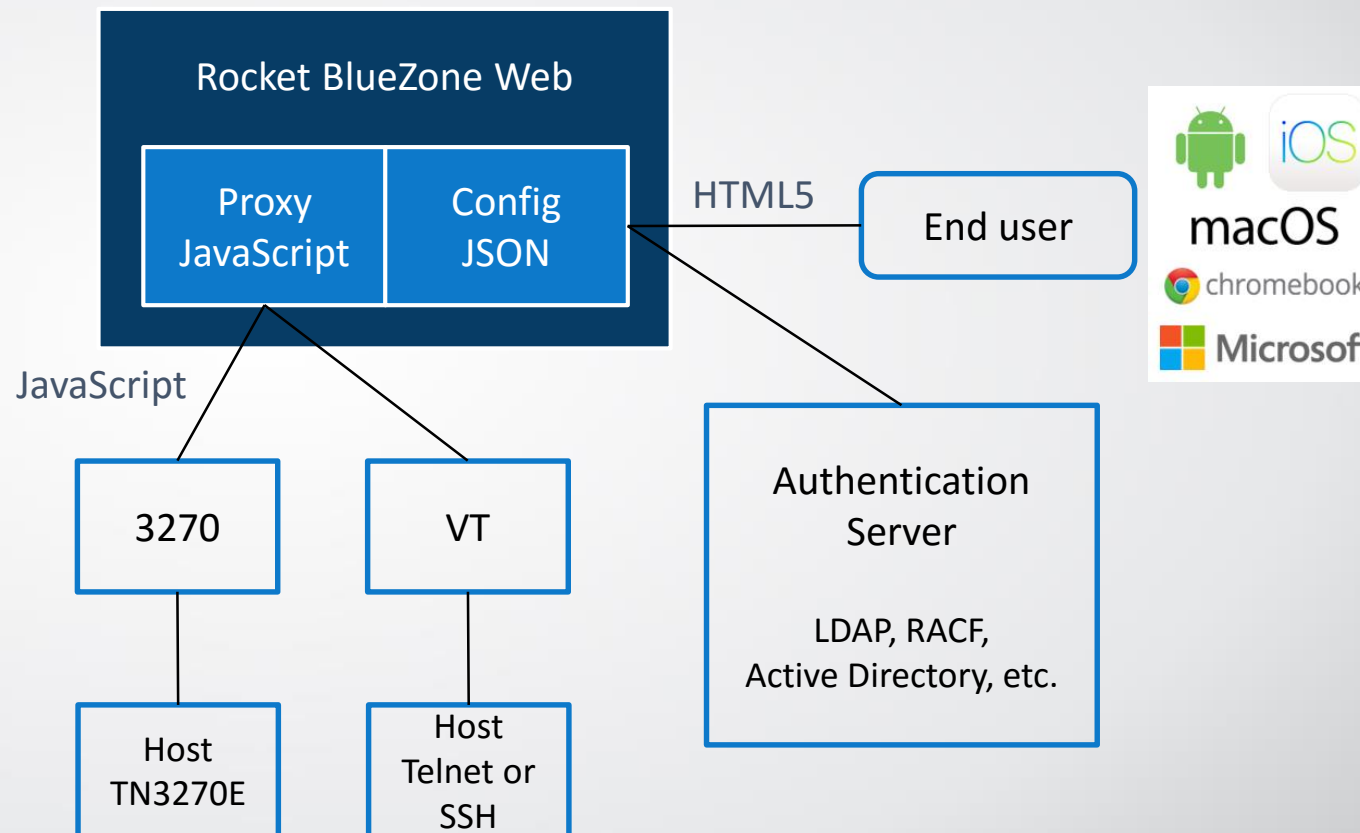
- Terminal Emulator designed to communicate with today's most popular host systems
- Written entirely in JavaScript and HTML5
- Works with modern web browsers
- Runs on PC's, tablets or just about any mobile device regardless of the client OS
- No software is installed on the client device.
- Can be installed on any platform that supports Node.js



Rocket BlueZone Web Architecture

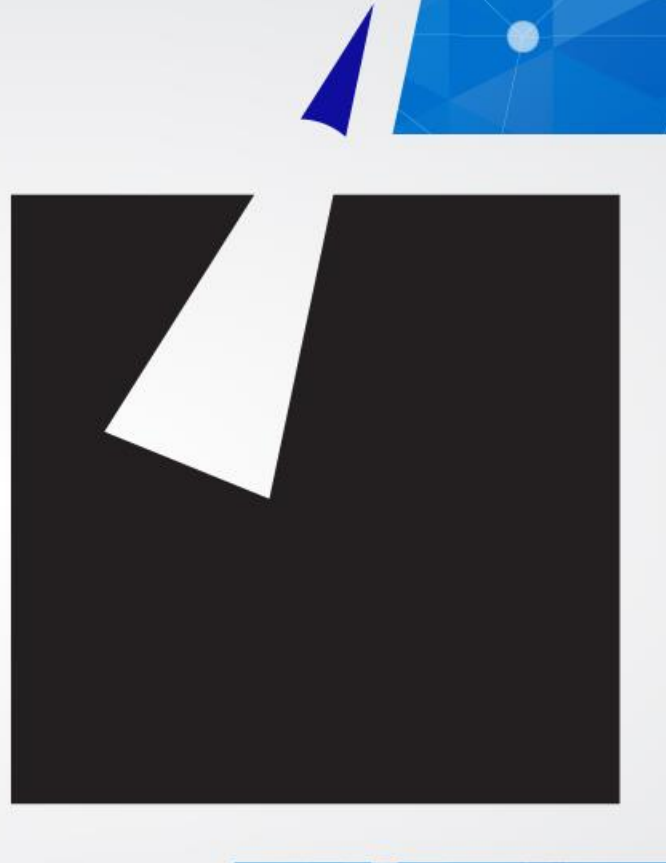


- JavaScript
- JSON
- HTML5
- CSS3
- iOS, Android, Linux, ...
- Chrome, Firefox, Edge, Safari, ...
- No Java, no ActiveX, no browser plugins





Legasuite Web and Rocket API



Repurpose Enterprise Applications as Web Apps



- Go from these:
- To this:



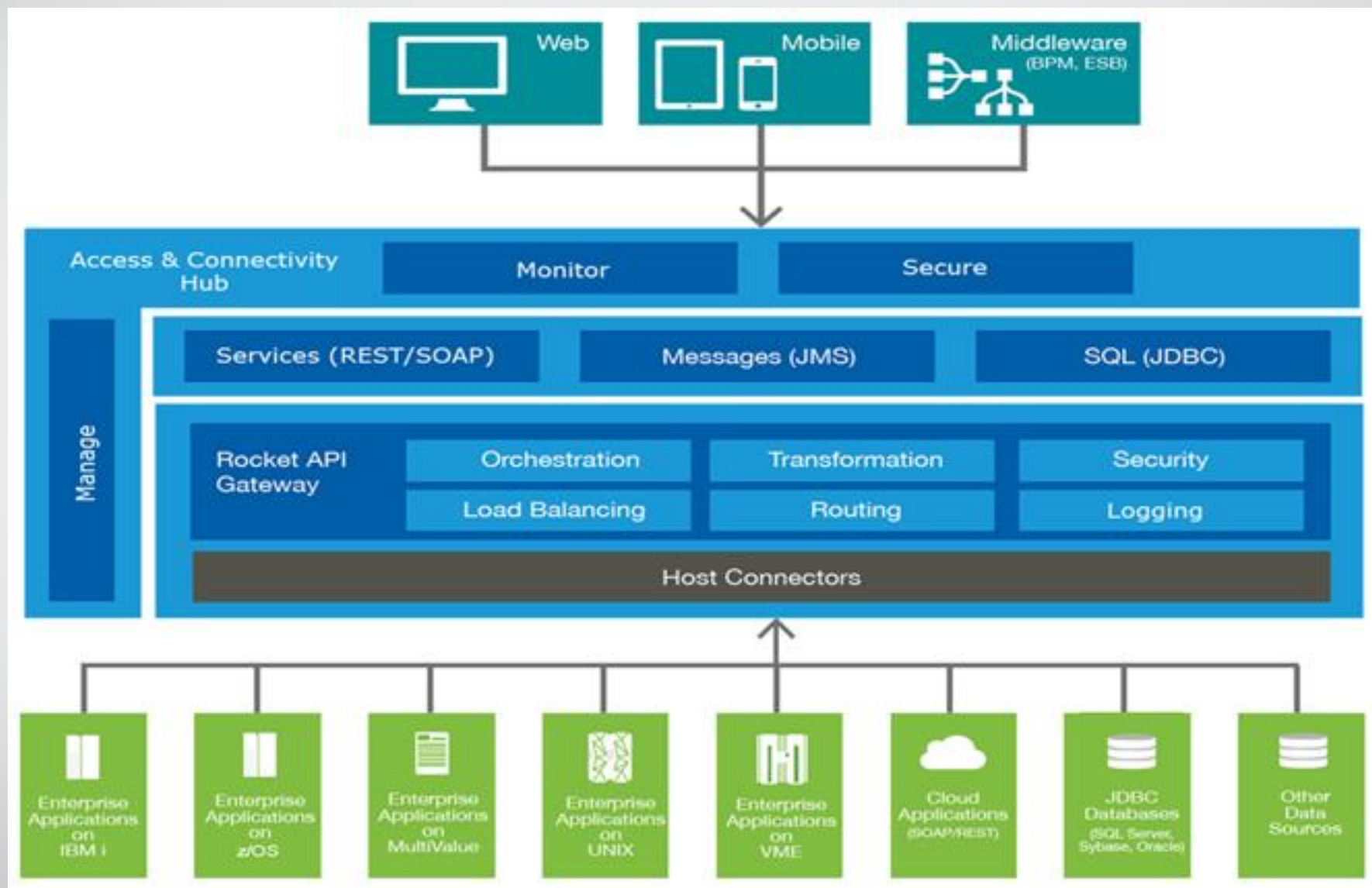
Features

- Repurpose host applications as HTML5 applications in weeks
- Make your enterprise apps accessible via any browser
- Zero-footprint deployment eliminates desktop application maintenance
- Combine with any third-party web library and API (jQuery, Google Maps, Salesforce)
- Embed parts of your application in web portals

Enable the Latest Technology to Meet Business Needs!



Rocket API Architecture



Optimized WorkFlows with Easily Manage Connections



LegaSuite Workbench GUI helps connect green screens to modern UI via a drag & drop environment with maximum flexibility.

LegaSuite Web, in conjunction with Rocket API, provides ease of use connection to multiple enterprise applications

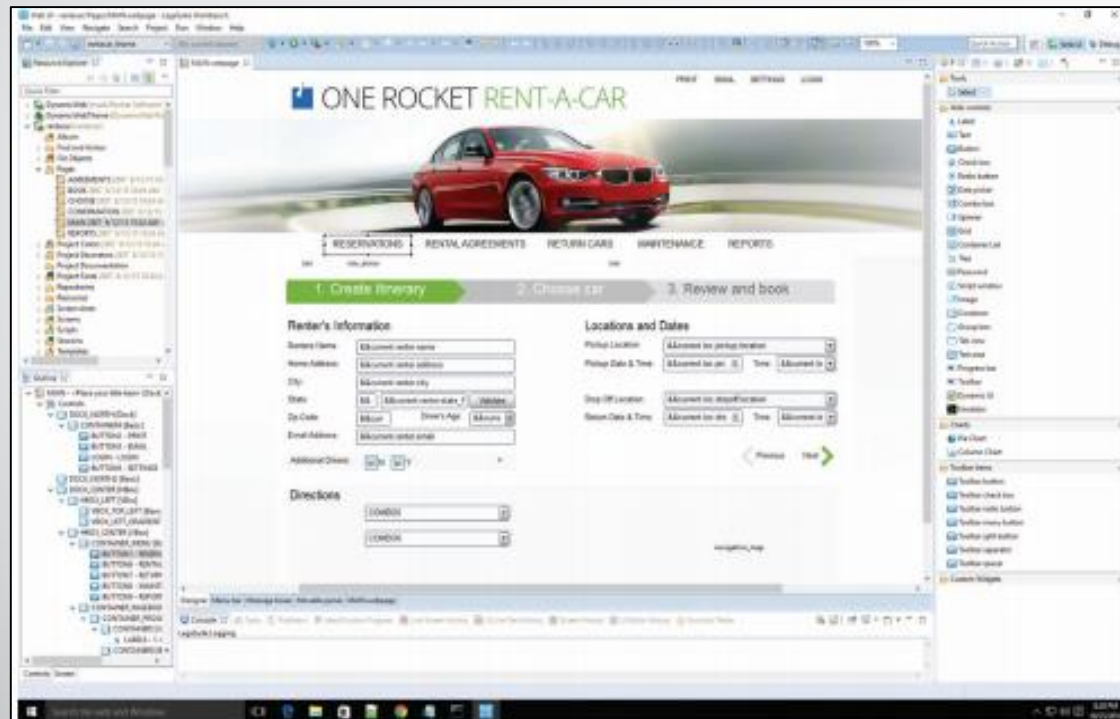


Figure 1: The Rocket LegaSuite Web and GUI Workbench lets users build optimized workflows that connect complex green screens to a web- or GUI-based interfaces.

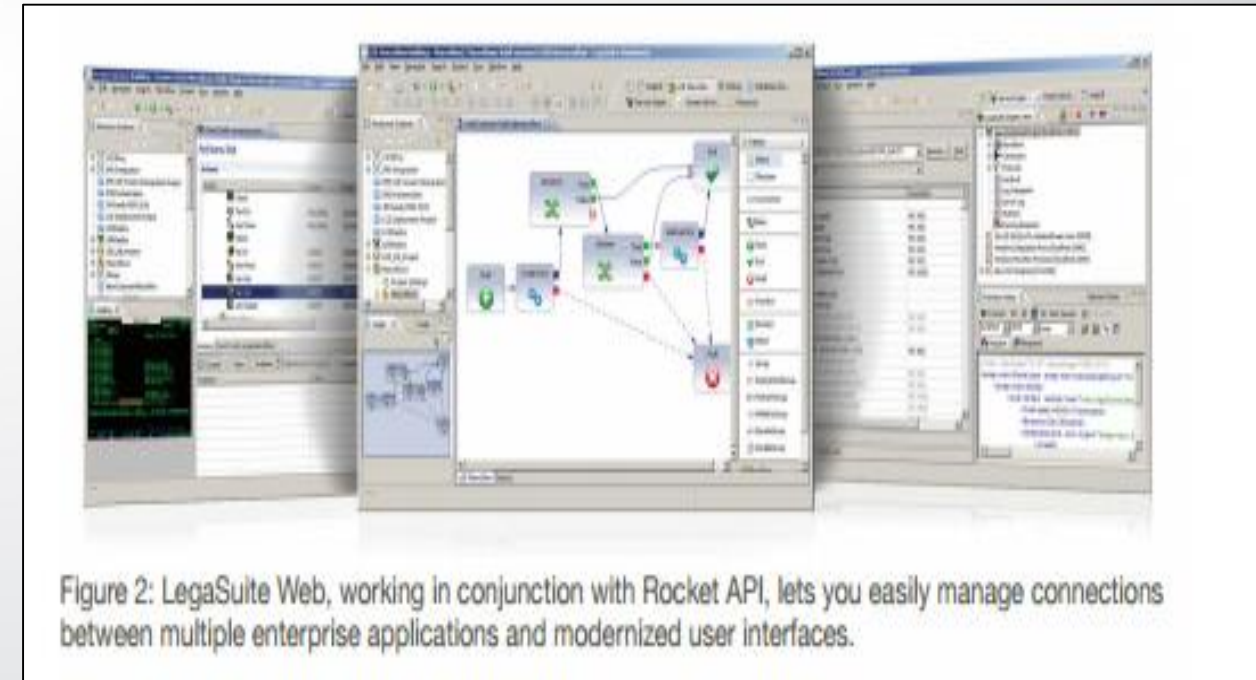


Figure 2: LegaSuite Web, working in conjunction with Rocket API, lets you easily manage connections between multiple enterprise applications and modernized user interfaces.

DR/Xpert

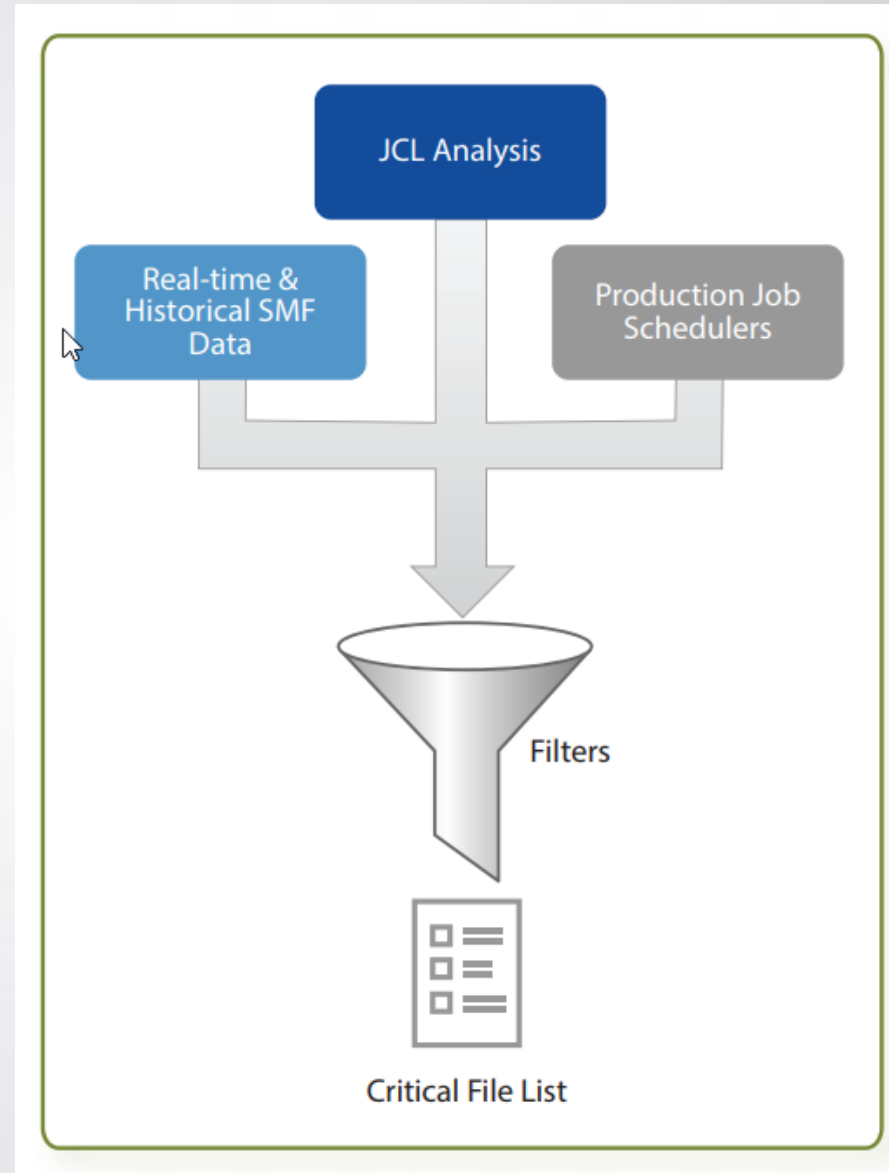
- Identify all your critical data effectively and in a timely manner
- Automatically recover to a select recovery date
- Prioritize your application recovery to meet your SLA
- Secure your backups automatically with encryption
- Achieve corporate audit and compliance objectives.
- Recover critical data in a quick, efficient manner.
- Recognize volumes that are mirrored
- Recall migrated critical datasets

Groups or segregates data based on predetermined filter criteria

Monitor changes to the critical data list continuously and ensures that it is always up-to-date

Include critical tape data in the backup

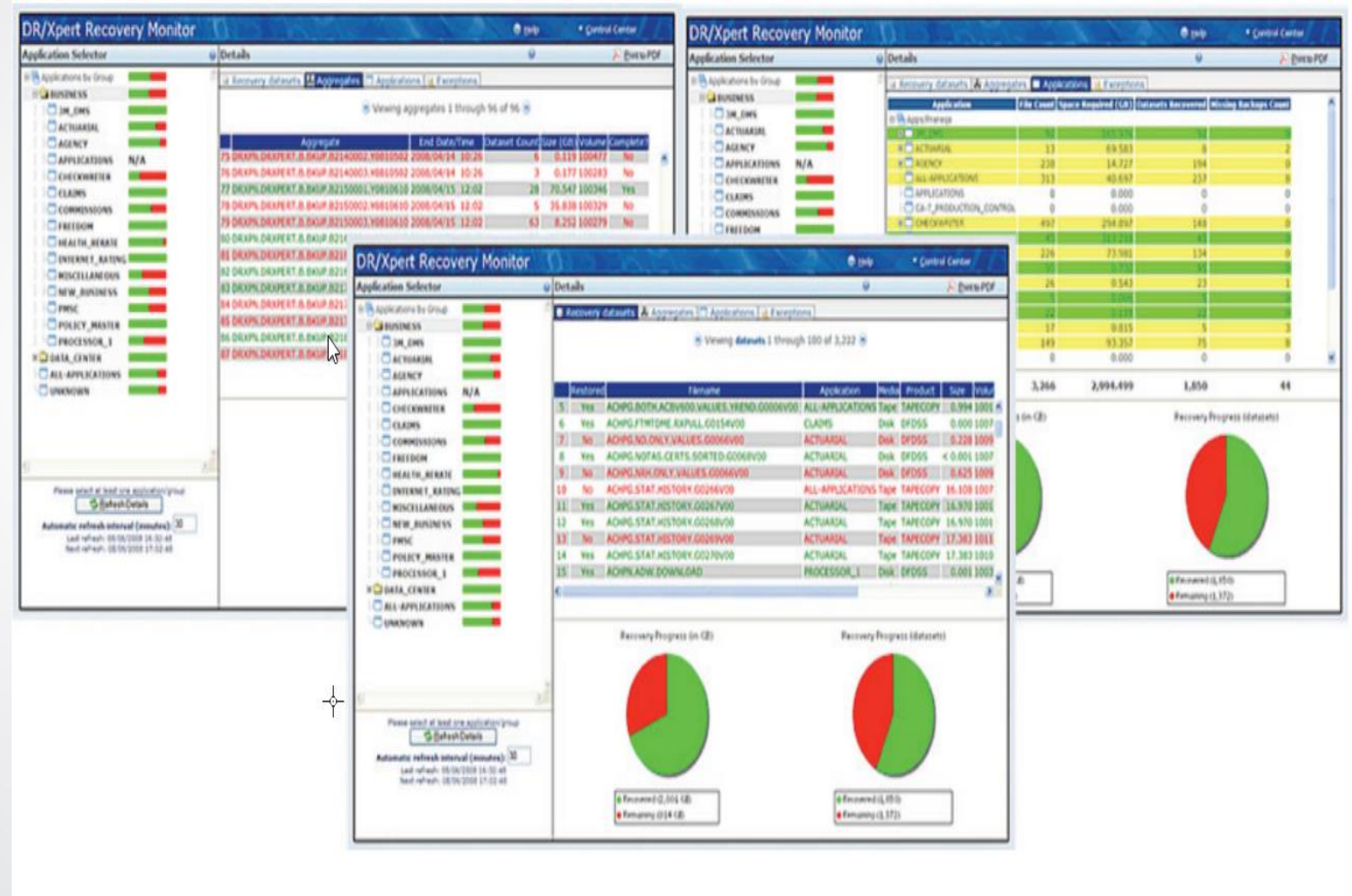
Integrate dynamically with the job scheduling



Drill down through your application, jobs, and datasets using a standard browser.

Quickly identify critical data and the reason it is critical.

Validate your recovery objectives using the Recovery Simulator.



DASD Backup and Recovery

DASD Backup Supervisor - (DBS)

- DBS Creates full volume physical backups
- Auto-discovery of changes in the environment
- Based on rules – auto adjust to accommodate changes
- Comprehensive audit reporting to document changes

DASD Backup Supervisor - Benefits

- Through automation DBS improves the integrity of customer backups
- DBS will exploit high density tape for DASD backups
 - Balance based on number of tape drives available
 - Select the percent full to fill the tapes
 - Select the number of DASD volumes to stack on each tape
 - Native JCL only allows 255 jobs steps per job
 - DBS is a one step job so the only limit on stacking is the tape size
- Provides freedom from the manual process of creating backup/restore JCL

⁷⁵DASD Backup Supervisor - Benefits

Automate building of backup and restore JCL

- Supports DFSMSdss and FDR
- Little to no user intervention for local or recovery site

Audit DASD volumes

- New volumes
- Missing volumes
- Changed volumes
- Audits DASD configuration at the DR site
- Ensures that you have enough DASD contracted for the DR site

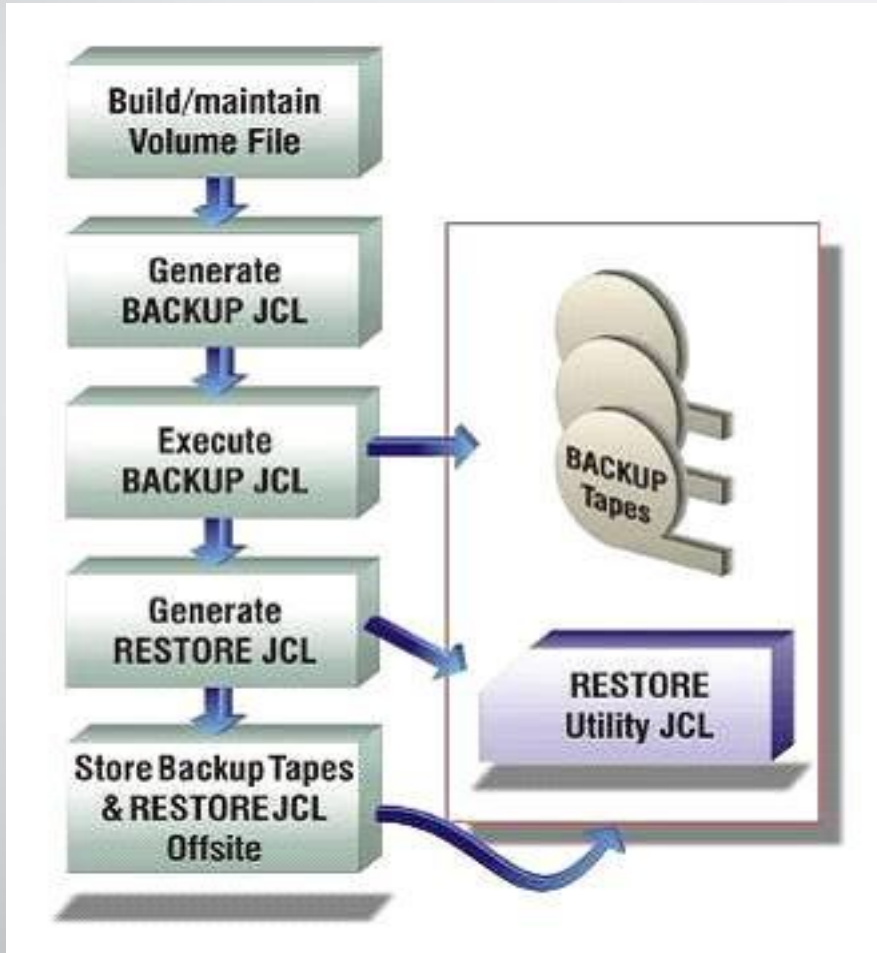
Easily adjusted at recovery site to support resource changes

- PARMLIB member update to reflect the new DASD addresses

Enhanced Features

- Automated “Point in Time” recovery support
 - Flash Copy, Time Finder, and Shadow Image
- Local dataset recovery from Full Volume Physical Back-ups
- Enhanced Large Tape Support
- Duplex copies (up to 4- DFSMSdss concurrently)
- Storage Group Support
- Progress Monitor Reporting
- DR/Xpert interface
- ISPF panel interface

How Does DBS Work?



- A batch job identifies any changes and makes updates.
- The Back-up JCL is created.
- Execution of the backup JCL builds the stacked backup tapes.
- The RESTORE step generates restore JCL and recovery Utility.
- The Restore JCL is shipped offsite with full volume backup tapes.

Discussion

IT'S NOT ROCKET SCIENCE.
IT'S ROCKET SOFTWARE.

